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Subject: Fw: NASA report on black carbon reduction - Widespread introduction of solar cooker technology and bio-gas would dramatically reduce this pollutant

Jim,

Good to talk with you yesterday. As promised, I am forwarding another article on stoves and black carbon.

All the best,

John

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Cutting one of humanity's most common pollutants would have immediate cooling effect, Nasa claims

By Geoffrey Lean, Environment Editor
The Independent, London
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Governments could slow global warming dramatically, and buy time to avert disastrous climate change, by slashing emissions of one of humanity's most familiar pollutants – soot – according to Nasa scientists. A study by the space agency shows that cutting down on the pollutant, which has so far been largely ignored by climate scientists, can have an immediate cooling effect – and prevent hundreds of thousands of deaths from air pollution at the same time.

At the beginning of the make-or-break year in international attempts to negotiate a treaty to replace the Kyoto Protocol, the soot removal proposal – which is being taken seriously by experts close to the Obama administration – offers hope of a rapid new way of tackling global warming. Governments have long experience in acting against soot. Cutting its emissions has a virtually instantaneous effect, because it rapidly falls out of the atmosphere, unlike carbon dioxide which remains there for over a hundred years. And because soot is one of the worst

killers among all pollutants, radical reductions save lives and so should command popular and political support.

The study – from Nasa's Goddard Institute for Space Studies, and published in the journal Atmospheric Chemistry and Physics – concludes that tackling the pollution provides "substantial benefits for air quality while simultaneously contributing to climate change mitigation" and "may present a unique opportunity to engage parties and nations not yet fully committed to climate change mitigation for its own sake."

Black carbon, the component of soot that gives it its colour, is thought to be the second largest cause of global warming after carbon dioxide.

Formed through incomplete combustion of fossil fuels, wood and vegetation, it delivers a double whammy.

While in the air, it is spread around the globe by the wind, and helps to heat the atmosphere by absorbing and releasing solar radiation. And when it falls out it darkens snow and ice, at the poles or high in mountains, reducing its ability to reflect sunlight. As a result it melts more quickly, and exposes more dark land or water which absorbs even more energy, and so increases warming.

The bad news – as the Washington-based Institute for Governance and Sustainable Development points out – is that soot is causing global warming to happen much faster than expected. Its president, Durwood Zaelke, says "black carbon is exacerbating the climate situation": "Taking quick action is quite simply our only near-term option."

Rich countries have already reduced their emissions of black carbon from burning fossil fuels dramatically since the 1950s. The health benefits of a worldwide cut could be massive. Soot contains up to 40 different cancer-causing chemicals and can also cause respiratory and heart diseases. **It is estimated to cause two million deaths in the developing world each year – mainly among children – when emitted from wood-burning stoves in poorly ventilated houses.** In Britain, research has shown that people are twice as likely to die from respiratory disease when heavily exposed to soot emitted from vehicle exhausts.

Tackling these two health crises, the **Nasa study concludes**, would also be the most effective short-term way of slowing climate change. Its research shows that **the "strongest leverage" on reducing global warming would be achieved by "reducing emissions from domestic fuel burning"** in developing countries, particularly in Asia, and by "reduction in surface transport emissions in North America", especially from diesel engines.

In both cases **solutions are known. Cookers using solar energy or biogas**, for example, eliminate smoke. And last month California brought

in measures to force trucks to fit filters to reduce diesel soot emissions by 85 per cent, estimating that they would save 9,400 lives over the next 16 years. ##

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"Qatra qatra darya mesha."
Drop by drop it becomes a river.

- -Afghan proverb